
**Soil Stockpile Report
Parcel A, Report No. 5**

**Boeing Realty Corporation C-6 Facility
Los Angeles, California**

August 1997



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**SOIL STOCKPILE REPORT
PARCEL A
REPORT NO. 5**

**BOEING REALTY CORPORATION C-6 FACILITY
LOS ANGELES, CALIFORNIA**

August 1997

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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1.0	INTRODUCTION	1-1
	1.1 Overview	1-1
	1.2 Purpose and Objective	1-1
2.0	OPEN AREA NO. 1 REMEDIAL EXCAVATION STOCKPILES	2-1
	2.1 Soil Sampling	2-2
	2.1.1 Hot Spot Sampling	2-2
	2.1.2 Stockpile Sampling	2-3
	2.1.3 Confirmation Sampling	2-3
	2.2 Soil Excavation	2-4
	2.3 Stockpile Soil Quality	2-5
	2.3.1 OA1-RE-4 Stockpiles A through J	2-5
	2.3.2 OA1-RE-5 Stockpiles A through J	2-5
	2.3.3 OA1-RE-6 Stockpiles A through J	2-6
3.0	DATA SUMMARY AND CONCLUSIONS	3-1
	3.1 Backfill Soil Screening Methodology	3-1
	3.2 Stockpile Evaluations	3-3
	3.2.1 OA1-RE-4 Stockpiles A through J	3-4
	3.2.2 OA1-RE-5 Stockpiles A through J	3-4
	3.2.3 OA1-RE-6 Stockpiles A through J	3-5
4.0	BIBLIOGRAPHY	4-1
Appendices		
	A - Laboratory Analytical Reports	
	A-1 OA1-RE-4 Stockpiles	
	A-2 OA1-RE-5 Stockpiles	
	A-3 OA1-RE-6 Stockpiles	

LIST OF FIGURES

Figure No.

- | | |
|---|--|
| 1 | C-6 Facility Map |
| 2 | Site Map |
| 3 | Remedial Excavations OA1-RE-4, OA1-RE-5, and OA1-RE-6 Locations |
| 4 | Remedial Excavation OA1-RE-4 Stockpiles A through F, Stockpiles and Sample Locations |
| 5 | Remedial Excavation OA1-RE-4 Stockpiles G1/G2 through J, Stockpiles and Sample Locations |
| 6 | Remedial Excavation OA1-RE-5 Stockpiles and Sample Locations |
| 7 | Remedial Excavation OA1-RE-6 Stockpiles and Sample Locations |
| 8 | Hot Spot and Confirmation Sample Locations |
| 9 | Soil Screening Evaluation Process |

LIST OF TABLES

Table No.

- | | |
|----|---|
| 1 | Summary of Soil Sample Analytical Methods |
| 2 | Analytical Data Summary, Remedial Excavation OA1-RE-4 Hot Spot Samples |
| 3 | Analytical Data Summary, Remedial Excavation OA1-RE-4 Stockpile Samples |
| 4 | Analytical Data Summary, Remedial Excavation OA1-RE-4 Confirmation Sample |
| 5 | Analytical Data Summary, Remedial Excavation OA1-RE-5 Hot Spot Sample |
| 6 | Analytical Data Summary, Remedial Excavation OA1-RE-5 Stockpile Samples |
| 7 | Analytical Data Summary, Remedial Excavation OA1-RE-6 Hot Spot Samples |
| 8 | Analytical Data Summary, Remedial Excavation OA1-RE-6 Stockpile Samples |
| 9 | Health-Based Remediation Goals |
| 10 | Open Area No. 1 Remedial Excavations OA1-RE-4 through OA1-RE-6 Stockpile Sample Reference |

Appendices for this document are on file at Boeing Realty Corporation, Long Beach, California.

SECTION 1.0

INTRODUCTION

In October 1996, Montgomery Watson (Montgomery) was retained by McDonnell Douglas Realty Company (MDRC), now the Boeing Realty Corporation, to assist with the redevelopment of Parcel A (the Site) of their C-6 facility located in Los Angeles, California. Figure 1 presents the C-6 facility. Figure 2 delineates the Site. The Site was formerly used to manufacture and store aircraft parts.

1.1 OVERVIEW

The Site consists of the northernmost quarter of the C-6 facility, encompassing approximately 50 acres. Demolition of the following buildings at the Site has occurred: Building 29, 33, 34, 36, 37, 57, 58, 61, and 67. Demolition of the following buildings is pending: Building 40, 41, 43/44, 45, and 66-A.

Information gathered during the data compilation and evaluation phase of this project indicated the presence of petroleum products and other chemicals of concern in the surface and subsurface.

A soil sampling and remedial excavation effort is being conducted in conjunction with the removal of foundations, slabs, and below-ground structures. The purpose of this effort is to assess soil quality and remove soil affected with petroleum hydrocarbons and other chemicals of concern in preparation for redevelopment of the Site. Soil which is determined to be affected with petroleum hydrocarbons and other chemicals is excavated and stockpiled at the Site.

Stockpiled soil discussed in this report has been generated from remedial excavations conducted in the open area located east of Buildings 37. For convenience, this area is referred to as "Open Area No. 1" in this report.

1.2 PURPOSE AND OBJECTIVE

The purpose of this document is to evaluate the quality of the stockpiled soil generated from the remedial excavations discussed in this report. Specifically, this document is the fifth in a series of stockpile reports which follows the facility-wide strategy for assessing and screening the analytical data so that the stockpiled soils can be divided into two categories: 1) soils requiring treatment or off-site disposal, and 2) soils suitable for use as construction backfill at the Site.

Along with its companion document, *Post-Remedial Excavation Confirmation Sample Report, Parcel A, Report No. 5* (Montgomery Watson, 1997(f)), this report documents that the Site excavation efforts meet the soil screening criteria established in Section 3.1 of this report.

SECTION 2.0

OPEN AREA NO. 1 REMEDIAL EXCAVATION STOCKPILES

Open Area No. 1 is located along the eastern portion of the Site, east of Building 37 and Building 41 extending to the Normandie Avenue property boundary. Open Area No. 1 is so designated because of its absence of structures, except for the Building 43/44 water tanks in the northeast corner. Open Area No. 1 formerly included the Gravel Yard, which was used for storage of miscellaneous materials and parts from the manufacturing operations of the facility. The facility storm drain outfall to the storm sewer is located near the northeast corner of the area. Historically, a railroad spur crossed Open Area No. 1 trending from south to north.

Building 41 was formerly used as a boiler house. The water tanks located at Building 43/44 in the northeast corner of Open Area No. 1 were formerly used to store diesel fuel oil which was pumped into Building 41 through buried product pipelines. These tanks were converted from diesel storage to water tanks (part of the C-6 facility's fire suppression system) approximately 25 years ago. The abandoned product lines leading from the tanks to Building 41 were discovered during the demolition process, and remedial excavations discussed in this report were conducted to remove primarily hydrocarbon-affected soil associated with releases from these product lines. Remedial excavations discussed in this report were conducted east of Building 37 within Open Area No. 1.

The location of each remedial excavation discussed in this report is presented in Figure 3. The 20-foot by 20-foot grid used to reference Building 37 remedial excavations (Montgomery Watson, 1997(g-i)) was extended into Open Area No. 1 as presented in Figure 3 for the same purpose. Remedial excavations were recorded using the following nomenclature:

Open Area No. (OA#) - Remedial Excavation (RE) - Chronological Number (#)
e.g., OA1-RE-4

Pertinent information related to the remedial excavations and the associated stockpiled soil discussed in this report is presented below. The locations of each stockpile are presented in Figure 4 through Figure 7.

Excavation/Stockpile(s)	Approximate Volume	Date of Excavation	Stockpile Location(s)
OA1-RE-4 / A — J	2,500 cu yds total	21 Jul 97 — 23 Jul 97	Within and west of Building 37 footprint
OA1-RE-5 / A — J	2,500 cu yds total	23 Jul 97 — 25 Jul 97	West of Building 37 footprint and within and north of Building 34 footprint
OA1-RE-6 / A — J	2,500 cu yds total	25 Jul 97 — 29 Jul 97	West of Building 37 footprint, within Building 34 footprint, and west of Building 34 footprint

2.1 SOIL SAMPLING

Hot spot sampling and confirmation sampling have been employed at Open Area No. 1. Detailed procedures for these activities are outlined in the *Sampling and Analysis Plan for Demolition Activities at the Douglas Aircraft Company C-6 Facility* prepared by Integrated Environmental Services, Inc. (IESI, 1997(a)) and previously submitted to the Regional Water Quality Control Board (RWQCB). In addition, stockpile sampling was performed on the excavated material. These procedures can be summarized as follows:

2.1.1 Hot Spot Sampling

Hot spot sampling was conducted at predetermined locations where former items of concern were located (e.g., product lines), and at other locations where demolition activities revealed soil which may have been affected by petroleum hydrocarbons or other chemicals of concern.

Hot spot samples were collected by first exposing "fresh" soil beneath the surface using a stainless steel utensil or similar device. A photoionization detector (PID) was used to measure headspace organic vapor concentrations in the freshly exposed soil at each location. Soil samples were collected for analysis where at least one of the following conditions existed: 1) the headspace VOC reading exceeded 5 ppm, (2) areas where staining of the soil was visible, or (3) areas where odors were noticeable.

Soil samples were collected for analysis in pre-cleaned, stainless steel sleeves by driving the sleeve into the soil with a rubber mallet or drive sampler. The ends of the sleeves were then covered with Teflon film and secured with plastic end caps. A unique sample identification using the following nomenclature was written in indelible ink on a sample label and attached to the sleeve.

Product Line (PL) - Grab Sample (GS) - Chronological Number (#) - Sample Depth (feet)
e.g., PL-GS-5-2.5'

Sample sleeves were placed in a cooler with blue ice and transported under chain-of-custody to a State-certified laboratory for analysis. Hot spot samples have been analyzed according to the analytical schedule presented in Table 1.

Hot spot sample locations discussed in this report have been subsequently excavated and data collected from these samples are considered representative of the corresponding stockpile soil quality.

2.1.2 Stockpile Sampling

Excavated soil was placed in stockpiles each consisting of approximately 250 cubic yards of soil. Generally, stockpile samples were collected at a frequency of approximately one sample per stockpile. Stockpile samples were collected from the most noticeably affected soil within the stockpile. Samples were collected by using a shovel to cut vertically into the side of a stockpile at each sample location to expose "fresh" soil; samples were then collected from the exposed vertical wall and headspace VOC concentrations were measured using the PID.

In a letter from Integrated Environmental Services, Inc. to the RWQCB dated August 6, 1997, the RWQCB concurred with a revised analytical sampling program as follows: stockpile soil samples were collected for analysis when PID readings were equal to or greater than 50 ppm at any stockpile; however, at least one sample per four consecutive stockpiles (1000 cubic yards) was collected if PID readings in each of the four consecutive stockpiles was less than 50 ppm.

Soil samples were collected for analysis in pre-cleaned, stainless steel sleeves by driving the sleeve into the soil with a rubber mallet or drive sampler. The ends of the sleeves were then covered with Teflon film and secured with plastic end caps. A unique sample identification using the following nomenclature was written in indelible ink on a sample label and attached to the sleeve.

Open Area No. (OA#) - Remedial Excavation No.(RE#) - Stockpile Chronological Number (SP#)

e.g., OA1-RE4-SP3

Sample sleeves were placed in a cooler with blue ice and transported under chain-of-custody to a State-certified laboratory for analysis.

Stockpile samples have been analyzed according to the analytical schedule presented in Table 1.

2.1.3 Confirmation Sampling

Confirmation sampling was conducted to ensure that residual surface soil (upper 12 feet) met soil screening criteria at each excavation. Confirmation samples discussed in this report were limited to those collected through "pot hole" excavations in the vicinity of the railroad

spur. These confirmation samples were collected to: (1) assess whether impacted soil was present, and if so, (2) to confirm the depth to clean, native soil.

Using a backhoe, soil was removed from "pot hole" excavations near the railroad spur to the depth of 4 feet where native soil was believed to occur based on PID readings, observations, and odor. Confirmation samples were collected in the soil brought to the surface in the backhoe bucket. Confirmation soil samples were collected by first exposing "fresh" soil using a stainless steel utensil or similar device. Soil samples were collected for analysis in pre-cleaned, stainless steel sleeves by driving the sleeve into the soil with a rubber mallet or drive sampler. The ends of the sleeves were then covered with Teflon film and secured with plastic end caps.

A unique sample identification using the following nomenclature was written in indelible ink on a sample label and attached to the sleeve.

Railroad Spur (RR) - Grab Sample (GS) - Chronological Number (#) - Sample Depth (feet)
e.g., RR-GS-23-4'

Sample sleeves were placed in a cooler with blue ice and transported under chain-of-custody to a State-certified laboratory for analysis. Confirmation samples have been analyzed according to the analytical schedule presented in Table 1.

Confirmation sample locations discussed in this report have been subsequently excavated and data collected from these samples are considered representative of the corresponding stockpile soil quality.

2.2 SOIL EXCAVATION

Remedial excavation to remove affected soil was conducted when one of the following conditions was discovered: (1) elevated PID readings greater than 5 ppm in hot spot samples, (2) visible staining, and (3) noticeable odors. A conservative approach was employed such that soil which exhibited any of these characteristics was excavated and stockpiled.

Remedial excavations were performed using heavy equipment (excavators, front-end loaders, end-dump trucks) associated with the building demolition effort. Air monitoring in accordance with South Coast Air Quality Management District Rule 1166 was conducted throughout remedial excavation activities.

The maximum depth of any excavation was approximately 12 feet below grade. Excavated soil was segregated based on the location from where it was removed. Soil stockpiles were placed on asphalt or plastic sheeting, and covered with plastic sheeting to protect the soil from the elements. The locations of each stockpile are presented in Figure 4 through Figure 7.

2.3 STOCKPILE SOIL QUALITY

Soil removal at Open Area No. 1 began on July 14, 1997 due to PID readings, visual observations, and noticeable odors in soil in the vicinity of the product lines.

2.3.1 OA1-RE-4 Stockpiles A through J

Soil removal at remedial excavation OA1-RE-4 began on July 21, 1997 and was completed on July 23, 1997.

Approximately 2,500 cubic yards of stockpiled soil associated with this additional excavation was removed with an excavator, transported and stockpiled within and west of the Building 37 footprint as shown in Figure 4 (Stockpiles A through F) and Figure 5 (Stockpiles G1/G2 through J).

The following types of samples have been collected and analyzed to evaluate the soil quality in OA1-RE-4 Stockpiles A through J:

- Hot spot samples
- Stockpile samples
- Confirmation sample

Three hot spot samples were collected along the product line at locations presented in Figure 8. The analytical data for these samples are summarized in Table 2.

Three stockpile samples were collected. The locations of these samples are presented in Figure 4 and Figure 5. Analytical data for these samples are summarized in Table 3.

One confirmation sample was collected in the vicinity of the railroad spur at the location presented in Figure 8. The analytical data for this sample are summarized in Table 4.

A complete set of laboratory analytical reports is presented in Appendix A-1.

2.3.2 OA1-RE-5 Stockpiles A through J

Soil removal at remedial excavation OA1-RE-5 began on July 23, 1997 and was completed on July 25, 1997.

Approximately 2,500 cubic yards of soil associated with this excavation was removed with an excavator, transported and stockpiled west of the Building 37 footprint, and within and north of the Building 34 footprint as presented in Figure 6 (Stockpiles A through J).

The following types of samples have been collected and analyzed to evaluate the soil quality in OA1-RE-5 Stockpiles A through J:

- Hot spot sample
- Stockpile samples

One hot spot sample was collected along the product line at the location presented in Figure 8. The analytical data for this sample are summarized in Table 5.

Three stockpile samples were collected. The locations of these samples are presented in Figure 6. Analytical data for these samples are summarized in Table 6.

A complete set of laboratory analytical reports is presented in Appendix A-2.

2.3.3 OA1-RE-6 Stockpiles A through J

Soil removal at remedial excavation OA1-RE-6 began on July 25, 1997 and was completed on July 29 1997.

Approximately 2,500 cubic yards of stockpiled soil associated with this additional excavation was removed with an excavator, transported and stockpiled west of the Building 37 footprint, within the Building 34 footprint, and west of the Building 34 footprint as shown in Figure 7 (Stockpiles A through J).

The following types of samples have been collected and analyzed to evaluate the soil quality in OA1-RE-6 Stockpiles A through J:

- Hot spot samples
- Stockpile samples

Three hot spot samples were collected along the product line at locations presented in Figure 8. The analytical data for this sample are summarized in Table 7.

Three stockpile samples were collected. The locations of these samples are presented in Figure 7. Analytical data for these samples are summarized in Table 8.

A complete set of laboratory analytical reports is presented in Appendix A-3.

SECTION 3.0

DATA SUMMARY AND CONCLUSIONS

This section presents soil screening criteria and the methodology used throughout the project for the identification of soils that are suitable for use as backfill. In addition, this section summarizes the analytical data associated with each stockpile discussed in this report and uses the aforementioned methodology to evaluate whether the soil stockpiles are suitable for use as backfill, or require treatment and/or off-site disposal.

3.1 BACKFILL SOIL SCREENING METHODOLOGY

The backfill soil screening criteria have been developed to satisfy two primary objectives: (1) residual concentrations in backfill materials must be below levels projected to impact underlying drinking water sources, and (2) residual concentration in backfill materials must be below levels projected to potentially impact human health under future construction and commercial/industrial activities at the Site.

In accordance with these objectives, individual remediation goals were developed for both drinking water and human health protection. The development of each of these remediation goals is discussed below followed by a summary of how these values will be implemented in the evaluation of soil suitability for backfill purposes.

Drinking Water

The generalized hydrostratigraphic succession at the Site is as follows (Kennedy/Jenks, 1996(b); Dames & Moore, 1993; Department of Water Resources, 1961):

SURFACE

Bellflower Aquitard

Gage Aquifer

El Segundo Aquitard

Lynwood Aquifer

Depth to groundwater at the Site is approximately 65 feet. Hydrostratigraphic information from voluminous data collected at the neighboring Del Amo and Montrose Chemical Superfund Sites can be correlated with subsurface information collected at the Site. Hydrostratigraphic correlations suggest that the shallowest groundwater at the Site occurs in the Bellflower Aquitard, which is not recognized as a drinking water source in the region (Dames & Moore, 1993).

Although the depth to the top of the Gage Aquifer should vary from approximately 120 to 150 feet (from west to east) across the Site, the Gage Aquifer is not utilized as a source of drinking water in the region (Dames & Moore, 1993). Consequently, the shallowest drinking water resource in the region would therefore be the Lynwood Aquifer, projected to occur at the depths of approximately 210 to 240 feet (from west to east) across the Site.

Based on the depth to the first drinking water source, the following permissible concentrations to 12 feet below ground surface have been approved by the RWQCB:

Analytes	Permissible Level
TRPH	
C4 - C12	2,000 mg/kg
C13 - C22	10,000 mg/kg
C22+	50,000 mg/kg
Metals	TTLC and STLC

Notes:

TTLC: Total Threshold Limit Concentration per CCR Title 22.

STLC: Soluble Threshold Limit Concentration per CCR Title 22.

Human Health

Site-specific health-based remediation goals (HBRGs) were developed by Integrated Environmental Services, Inc. using standard United States Environmental Protection Agency (USEPA) and California Environmental Protection Agency (Cal/EPA) methodologies. HBRGs were derived assuming future commercial industrial land use with an interim construction phase. Each HBRG will be used as a predictor of the risk posed by individual VOC, SVOC, PCB, and metal contaminants in soil. The additive effects of multiple contaminants have been accounted for by setting conservative target risk levels at 1×10^{-6} for carcinogens and 0.2 for toxicants. The final cumulative risks for all residual contaminants at the Site will be addressed in the post-remedial risk assessment. Table 9 summarizes the HBRGs to be used at the Site. A more detailed discussion of the methodologies used to derive these values has been presented in the *Health-Based Remediation Goals for Surface Soils* document (IESI, 1997(b)).

Evaluation Process

All soil excavated at the Site will undergo the soil screening evaluation process depicted in Figure 9. This evaluation process incorporates both drinking water and human health-based criteria. Soils that fail any portion of this test will be subjected to treatment prior to use as backfill or disposed of off-site. Once soils have passed all aspects of the evaluation procedure, they should be made readily available for use as backfill.

Additionally, metal concentration(s) in stockpiled soils were used to further characterize the waste soil as follows:

Stockpiled soils were classified as non-RCRA hazardous waste if representative soil samples contained any metal in total concentration equal to or greater than its respective TTLC per CCR Title 22. Representative soil samples were analyzed for soluble metal concentration using the Waste Extraction Test (WET) if the total concentration of any metal was equal to or greater than 10 times its respective STLC but less than its TTLC per CCR Title 22. Stockpiled soil was classified as non-RCRA hazardous waste if representative soil samples contained any metal in soluble concentration using the WET equal to or greater than its respective STLC per CCR Title 22. Additionally, representative soil samples which were analyzed using the WET were also analyzed for soluble metal concentrations using the Toxic Characteristic Leaching Procedure (TCLP). Stockpiled soil was classified as a RCRA characteristic hazardous waste if the soluble concentration of any metal using the TCLP was equal to or greater than the toxicity characteristic (TC) per CCR Title 22.

3.2 STOCKPILE EVALUATIONS

Chemicals of concern at the Site can be summarized as follows:

- Petroleum hydrocarbons
- VOCs
- SVOCs
- PCBs
- Metals

The sampling and analysis program for remedial excavations discussed in this report was conservatively focused on these chemicals of concern by implementing the following analytical schedule:

- All samples were analyzed for TRPH and metals.
- All samples which contained TRPH in concentration greater than 10,000 mg/kg were subsequently analyzed for carbon chain length.
- All stockpile samples were additionally analyzed for VOCs and SVOCs.
- Stockpile samples were additionally analyzed for PCBs at a frequency of one sample per remedial excavation.
- Hot spot samples were additionally analyzed for VOCs, SVOCs, hydrocarbon fuel characterization, and PCBs.

- Railroad spur confirmation samples were analyzed for PCBs, and selectively analyzed for VOCs, SVOCs, and fuel characterization based on field observations.

3.2.1 OA1-RE-4 Stockpiles A through J

Soil samples (hot spot, stockpile, and confirmation) associated with Stockpiles A through J are cross-referenced in Table 10. Analytical data associated with these stockpiles are presented in Table 2, Table 3, and Table 4. These data are summarized and evaluated below.

Petroleum Hydrocarbons: Hot spot sample PL-GS-3-3' (Stockpile A) contained the highest concentration of TRPH (18,000 mg/kg). This sample met or exceeded the permissible concentrations for the C4 - C12 and C13 - C22 hydrocarbon chain ranges.

VOCs: All VOC concentrations were below HBRGs.

SVOCs: All SVOC concentrations were below HBRGs.

PCBs: PCBs were detected in sample OA1-RE4-SP1 in concentration of 0.035 mg/kg, which is below the HBRG for aroclor 1254 of 0.870 mg/kg.

Metals: Hot spot samples PL-GS-3-3' (Stockpile A) and OA1-RE4-SP1 (Stockpile A) exceeded 10 times the STLC value for chromium; however, these samples did not meet or exceed the STLC when analyzed using the WET, or the TC when analyzed using the TCLP. None of the other samples met or exceeded TTLC, 10 times the STLC, or HBRGs.

Conclusion: Stockpile A exceeded permissible hydrocarbon chain concentrations and will therefore be treated or hauled off-site for proper disposal as non-hazardous waste. The data suggest that Stockpiles B through J meet the soil screening criteria presented in Section 3.1 of this report. Approval to use this stockpiled soil for backfill at the Site is requested. For convenience, the results of the soil screening evaluation are included in Table 10.

3.2.2 OA1-RE-5 Stockpiles A through J

Soil samples (hot spot and stockpile) associated with Stockpiles A through J are cross-referenced in Table 10. Analytical data associated with these stockpiles are presented in Table 5 and Table 6. These data are summarized and evaluated below.

Petroleum Hydrocarbons: Stockpile sample OA1-RE5-SP1 (Stockpile C) contained the highest concentration of TRPH (300 mg/kg). This concentration is below the permissible limit and therefore TRPH was not speciated.

VOCs: All VOC concentrations were below HBRGs.

SVOCs: All SVOC concentrations were below HBRGs.

PCBs: PCBs were detected in sample OA1-RE5-SP1 in concentration of 0.038 mg/kg, which is below the HBRG for aroclor 1254 of 0.870 mg/kg.

Metals: Stockpile sample OA1-RE5-SP3 (Stockpile J) exceeded 10 times the STLC for chromium; however, this sample did not meet or exceed the STLC when analyzed using the WET, or the TC when analyzed using the TCLP. None of the other samples met or exceeded TTLC, 10 times the STLC, or HBRGs.

Conclusion: The data suggest that Stockpiles A through J meet the soil screening criteria presented in Section 3.1 of this report. Approval to use this stockpiled soil for backfill at the Site is requested. For convenience, the results of the soil screening evaluation are included in Table 10.

3.2.3 OA1-RE-6 Stockpiles A through J

Soil samples (hot spot and stockpile) associated with Stockpiles A through J are cross-referenced in Table 10. Analytical data associated with these stockpiles are presented in Table 7 and Table 8. These data are summarized and evaluated below.

Petroleum Hydrocarbons: Hot spot sample PL-GS-8-3.5' (Stockpile H) contained the highest concentration of TRPH (20,000 mg/kg); however this sample did not exceed the permissible upper limit on any carbon chain range. Hot spot sample PL-GS-9-3.5' (Stockpile J) contained TRPH (16,000 mg/kg) and exceeded the permissible upper limit concentration on the C13 - C22 carbon chain range.

VOCs: All VOC concentrations were below HBRGs.

SVOCs: All SVOC concentrations were below HBRGs.

PCBs: PCBs were detected in sample OA1-RE6-SP2 in concentration of 0.079 mg/kg, which is below the HBRG for aroclor 1254 of 0.870 mg/kg.

Metals: Stockpile samples OA1-RE6-SP2 (Stockpile H) exceeded 10 times the STLC value for chromium; however, this sample did not meet or exceed the STLC when analyzed using the WET, or the TC when analyzed using the TCLP. None of the other samples met or exceeded TTLC, 10 times the STLC, or HBRGs.

Conclusion: Stockpile J exceeded a permissible hydrocarbon chain concentration and therefore will be treated or hauled off-site for proper disposal as non-hazardous waste. The data suggest that Stockpiles A, B, C, D, E, F, G, H, and I meet the soil screening criteria presented in Section 3.1 of this report. Approval to use this stockpiled soil for backfill at the Site is requested. For convenience, the results of the soil screening evaluation are included in Table 10.

SECTION 4.0

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Figures

Figures



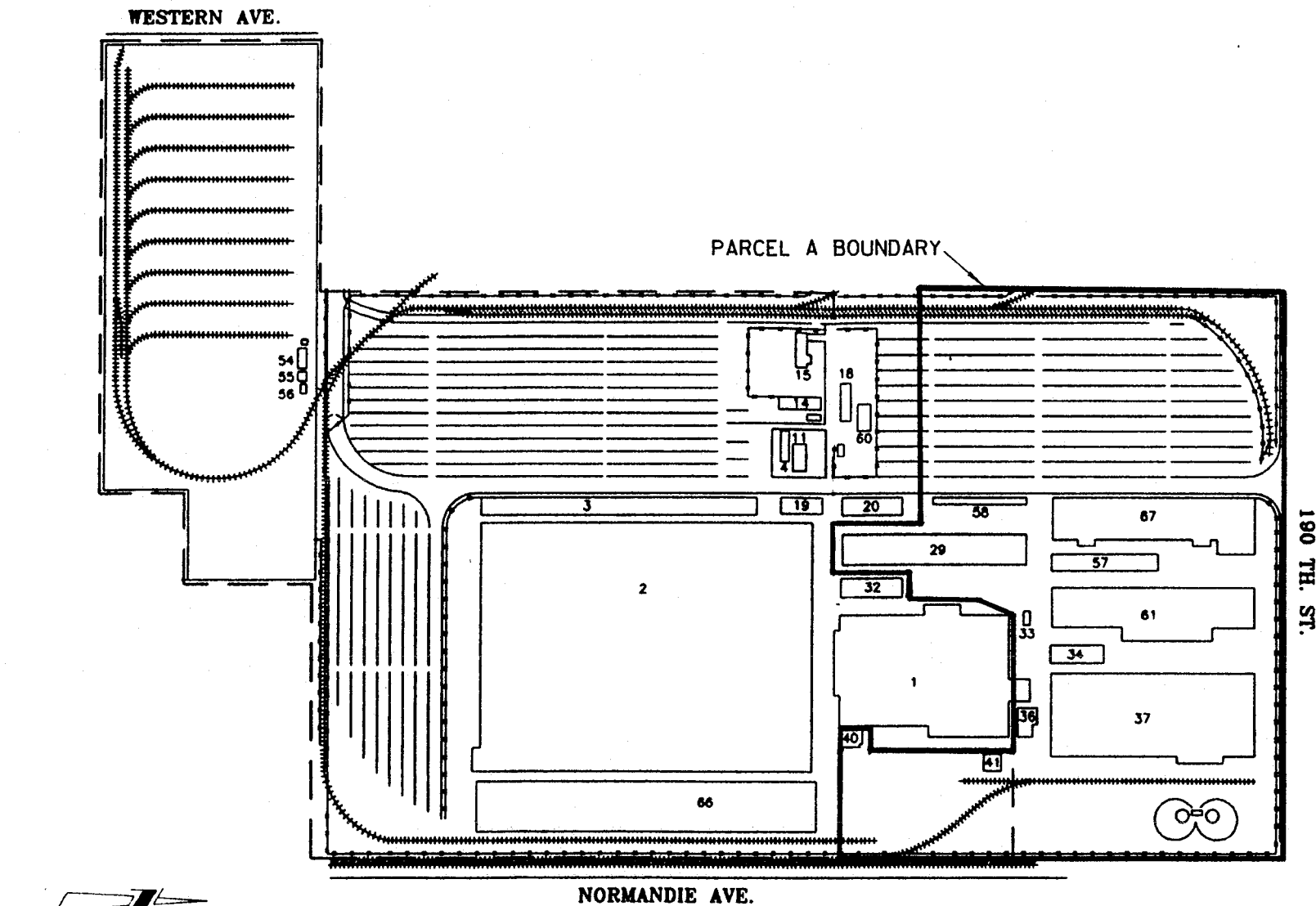
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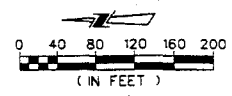
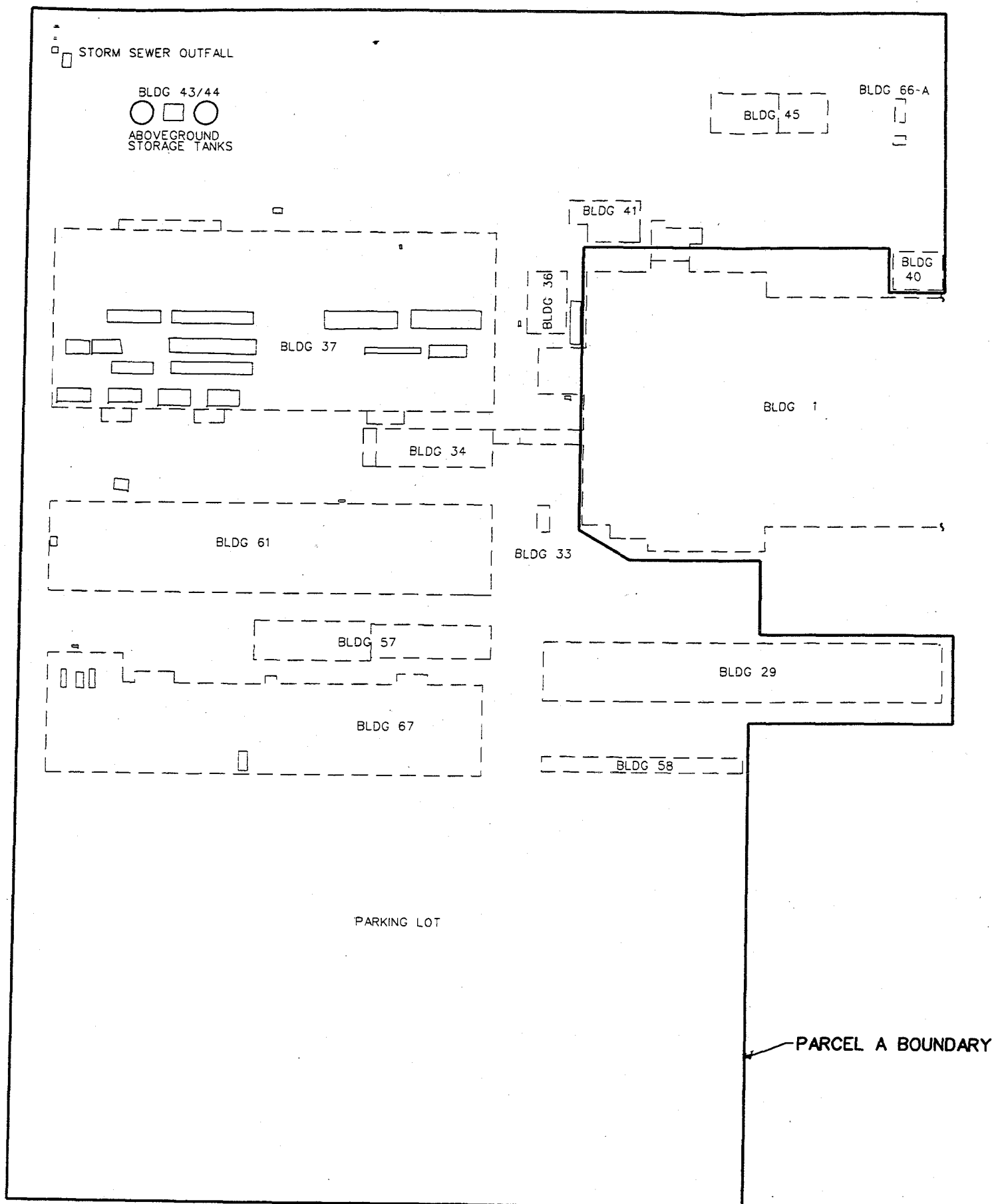
MONTGOMERY WATSON

C-6 FACILITY MAP

FIG. 1



Base map developed from Facility Layout and Subject
Property Map by Kennedy/Jenks Consultants, May 1996.

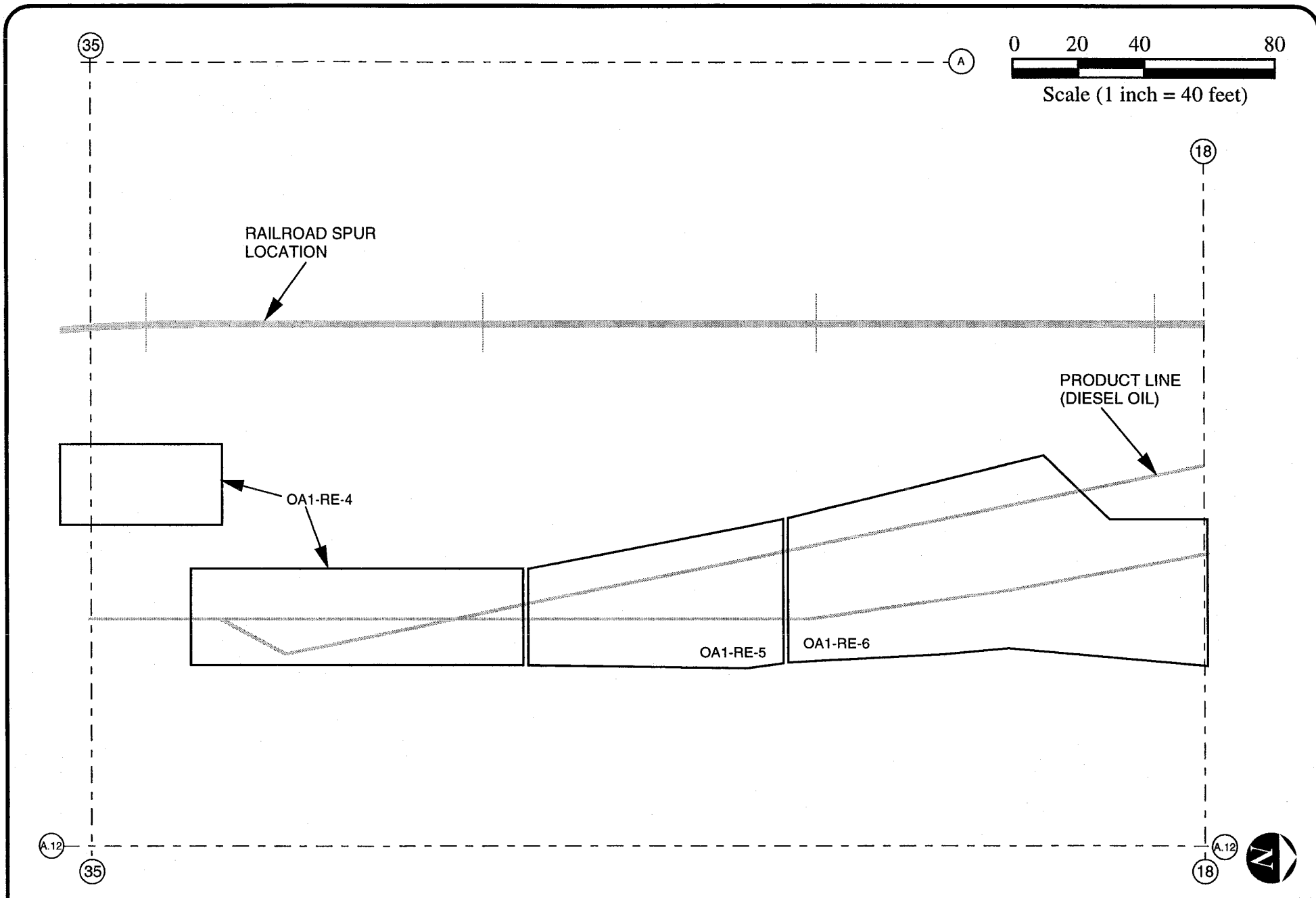


BASE MAP DEVELOPED FROM TAIT & ASSOCIATES INC.
SURVEY DRAWING DATED 10/22/96.

JOB No. _____ FILE No. _____		SCALE: AS SHOWN	DESIGNED: DRAWN N. CHRAKIAN CHECKED S. REINERS	SUBMITTED PROJECT ENGINEER RECOMMENDED MONTGOMERY WATSON	R. C. E. NO. _____ DATE _____ R. C. E. NO. _____ DATE _____	APPROVED _____ DATE _____ APPROVED _____ DATE _____	BOEING REALTY CORPORATION PARCEL A SITE MAP	SHEET FIG. 2 OF 4 SHEETS
REV DATE BY DESCRIPTION								



BOE-C6-0061529

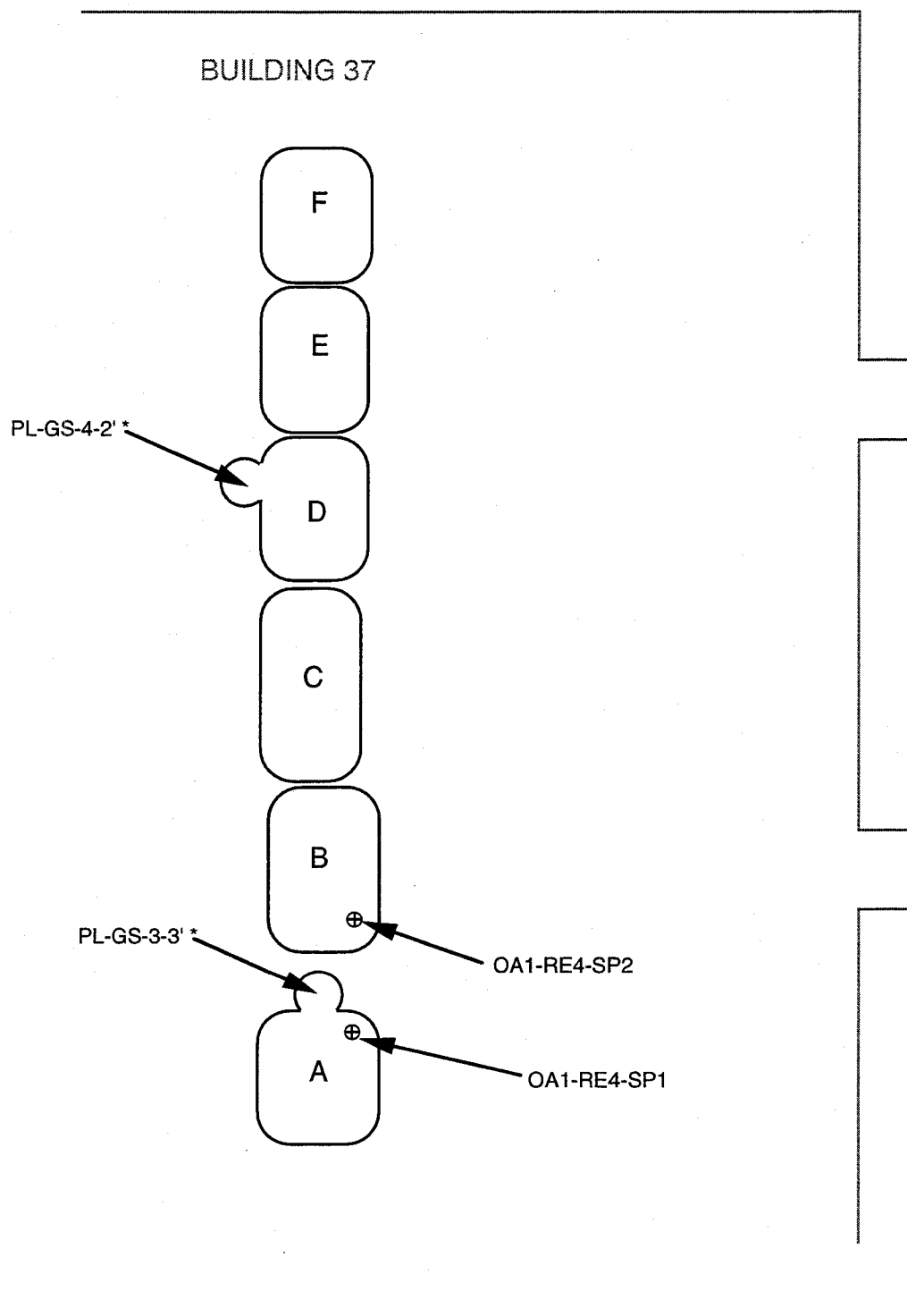


BOEING REALTY CORPORATION
C-6 FACILITY

Remedial Excavations OA1-RE-4, OA1-RE-5, and OA1-RE-6 Locations

FIGURE 3

Not to Scale



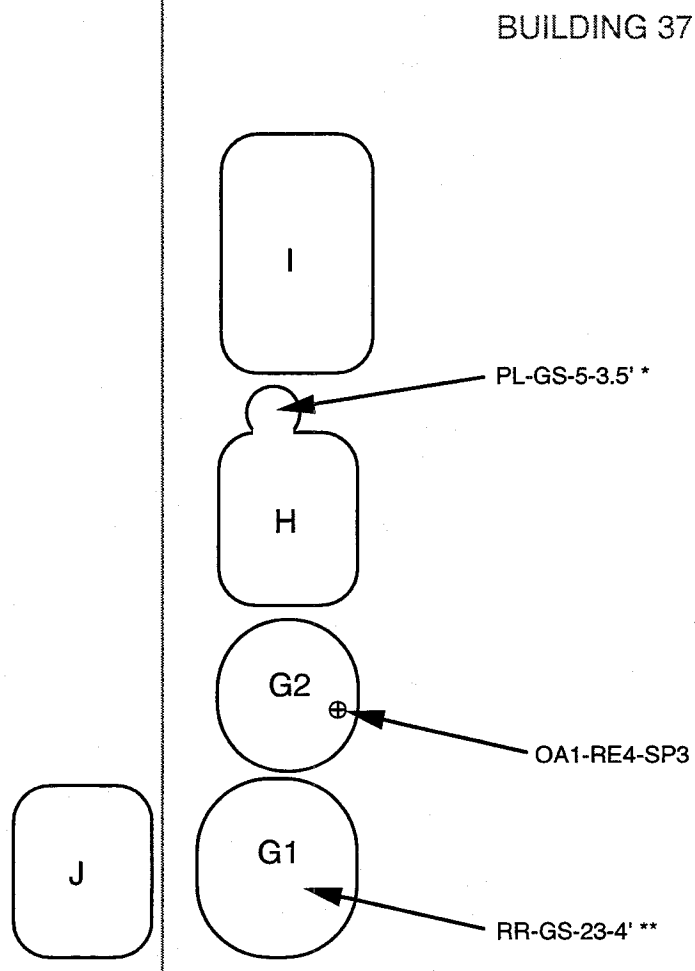
* See Figure 8 for these Hot Spot Sample Locations

BOEING REALTY CORPORATION
C-6 FACILITY

**Remedial Excavation OA1-RE-4 Stockpiles A through F
Stockpiles and Sample Locations**

FIGURE 4

Not to Scale



* See Figure 8 for this Hot Spot Sample Location

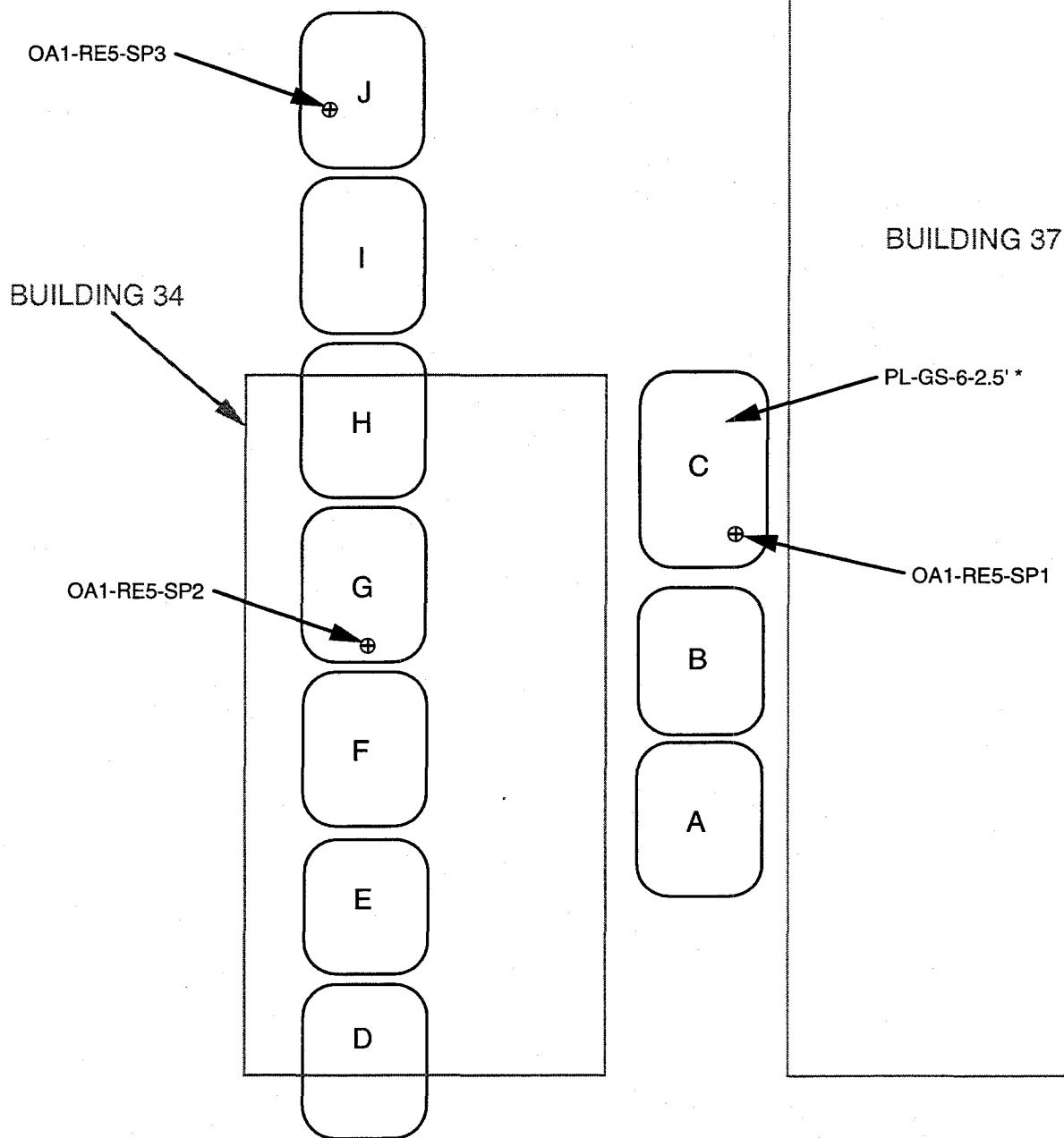
** See Figure 8 for this Confirmation Sample Location

BOEING REALTY CORPORATION
C-6 FACILITY

Remedial Excavation OA1-RE-4 Stockpiles G1/G2 through J
Stockpiles and Sample Location

FIGURE 5

Not to Scale



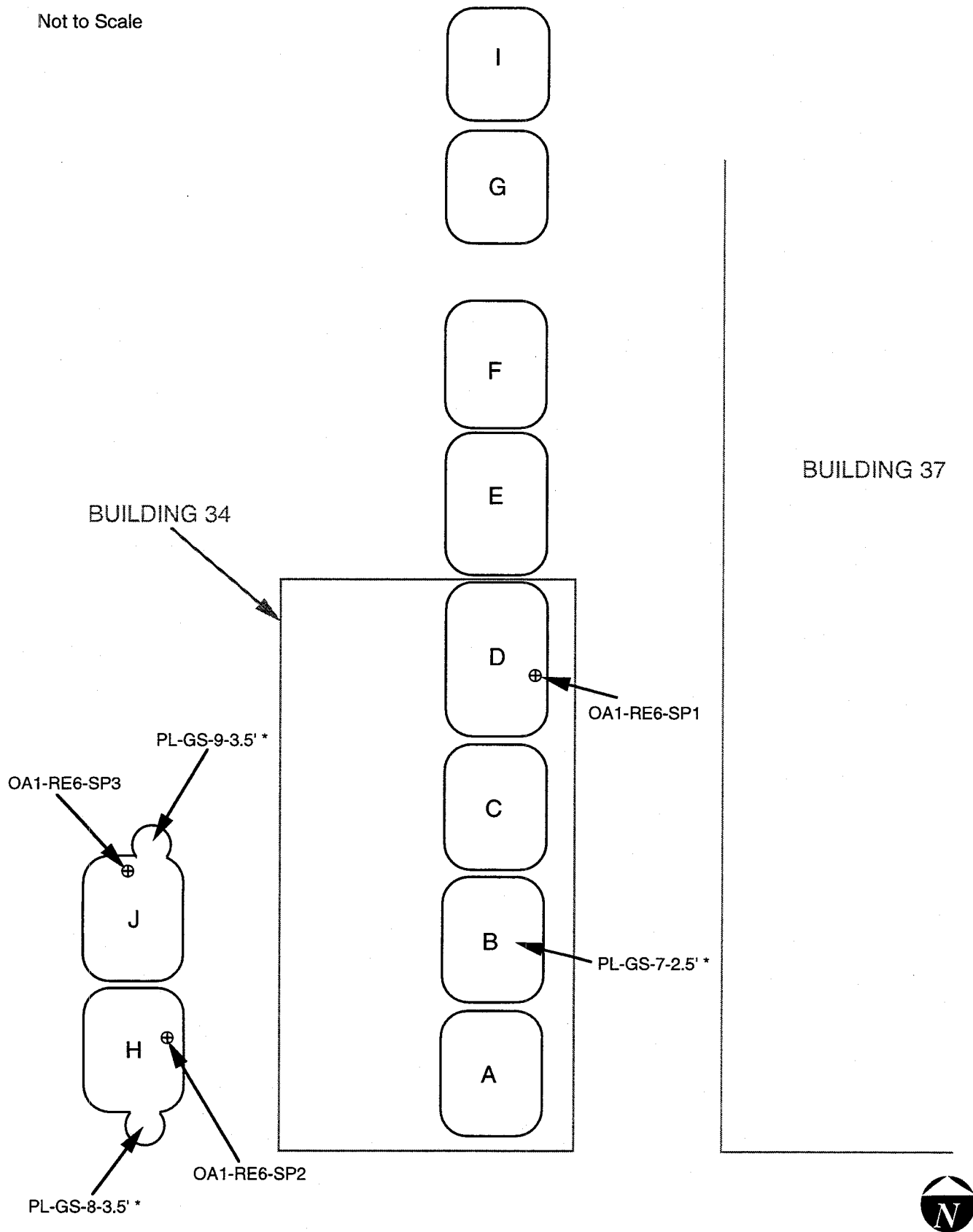
* See Figure 8 for this Hot Spot Sample Location

BOEING REALTY CORPORATION
C-6 FACILITY

FIGURE 6

Remedial Excavation OA1-RE-5 Stockpiles and Sample Locations

Not to Scale

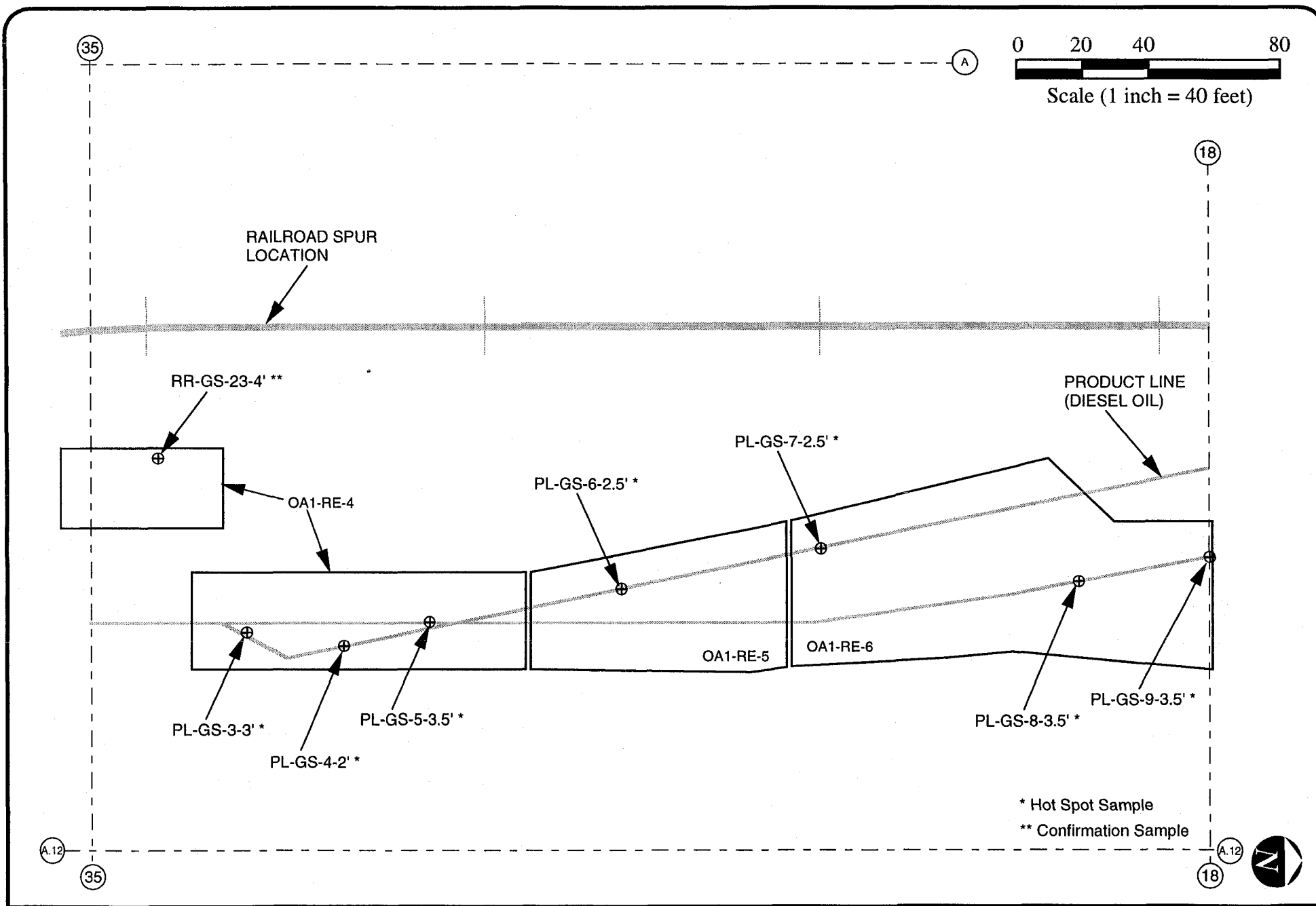


* See Figure 8 for these Hot Spot Sample Locations

BOEING REALTY CORPORATION
C-6 FACILITY

Remedial Excavation OA1-RE-6 Stockpiles and Sample Locations

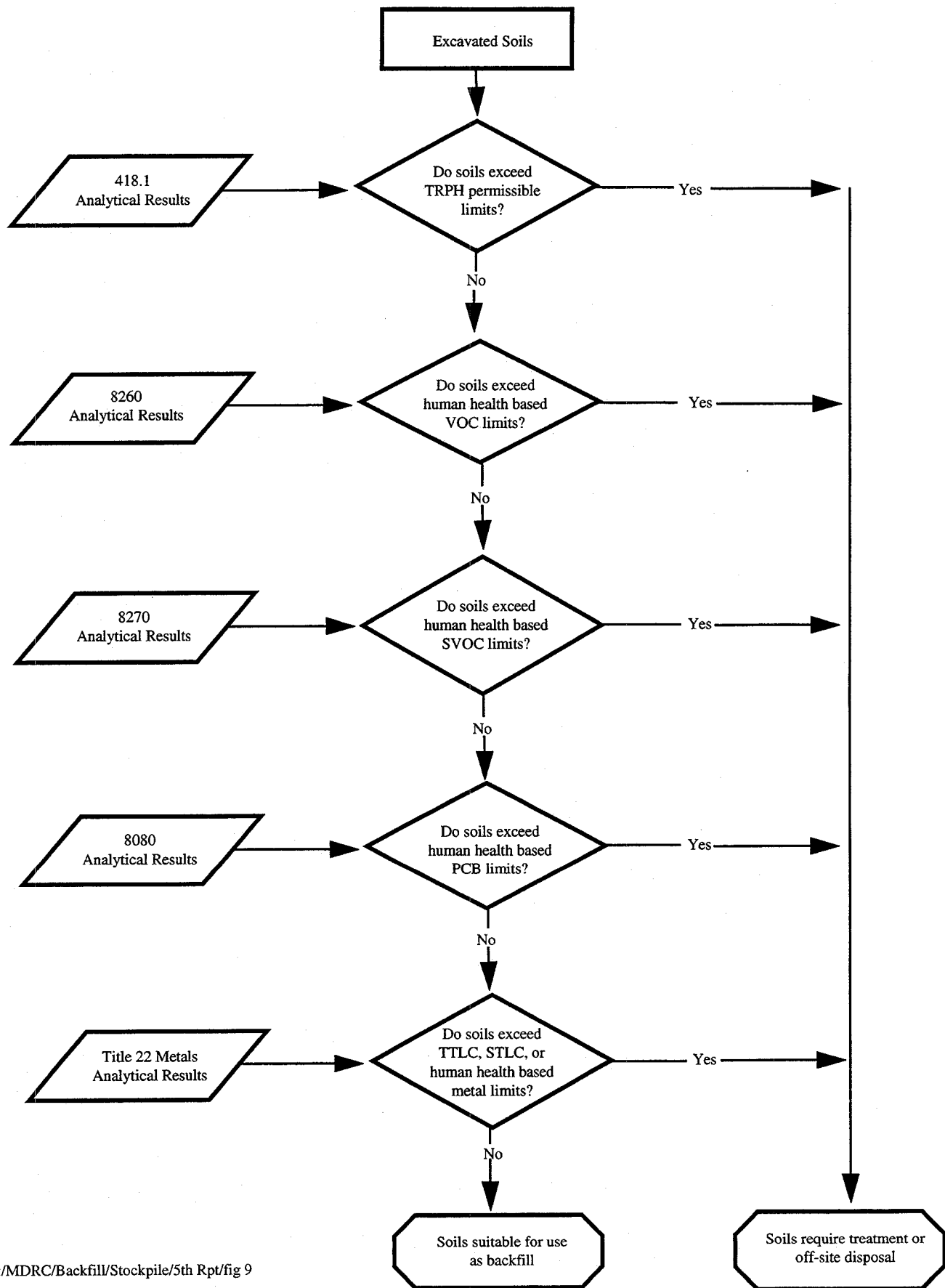
FIGURE 7



BOEING REALTY CORPORATION
C-6 FACILITY
Hot Spot and Confirmation Sample Locations

FIGURE 8

FIGURE 9
Soil Screening Evaluation Process



Tables



MONTGOMERY WATSON

TABLE 1**Summary of Soil Sample Analytical Methods**

Sample Type	EPA Method	Analyte
Hot Spot Sample	418.1 6000/7000 8260 8270 8080 8015M	TRPH (a) Metals VOCs SVOCs PCBs Fuel Characterization
Stockpile Sample	418.1 6000/7000 8260 8270 8080	TRPH (a) Metals VOCs SVOCs PCBs (b)
Confirmation Sample	418.1 6000/7000 8080 8015M	TRPH (a) Metals PCBs Fuel Characterization (c)

Notes:

TRPH Total Recoverable Petroleum Hydrocarbons

VOCs Volatile Organic Compounds

SVOCs Semi-volatile Organic Compounds.

PCBs Polychlorinated Biphenyls

(a) Samples exhibiting TRPH concentration greater than 10,000 mg/kg were submitted for carbon chain analysis.

(b) One sample per remedial excavation.

(c) Confirmation samples were selectively analyzed for fuel characterization.

TABLE 2
Analytical Data Summary
Remedial Excavation OA1-RE-4 Hot Spot Samples

Analyte	EPA Method	Sample Number, Collection Date, Grid Location and Depth			Regulatory Levels	
		PL-GS-3-3' 6/3/97 A.8/A.9-32.5 @ 3' bgs*	PL-GS-4-2' 6/9/97 A.9-31 @ 2' bgs*	PL-GS-5-3.5' 6/9/97 A.8/A.9-30 @ 3.5' bgs*		
TRPH (mg/kg)	418.1	18,000	<8.0	<8.0		
TPHd (mg/kg)	8015M	28,000	<8.0	<8.0		
TPHg (mg/kg)	8015M	47	<5.0	<5.0		
Title 22 Metals (mg/kg)					TTLc	STLC
					(mg/kg)	(mg/L)
Antimony	6010	<5.0	<5.0	<5.0	500	15
Arsenic	6010	<1.0	<1.0	<1.0	500	5
Barium	6010	100	93	99	10,000	100
Beryllium	6010	<0.1	<0.1	<0.1	75	0.75
Cadmium	6010	<0.1	<0.1	<0.1	100	1
Chromium (VI)	7196	<0.5	<0.5	<0.5	500	5
Chromium (total)	6010	120 (2)	17	19	2,500	5
Cobalt	6010	6.0	4.1	5.0	8,000	80
Copper	6010	28	5.9	5.0	2,500	25
Lead (total)	6010	<1.0	<1.0	<1.0	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.5	<0.5	<0.5	3,500	350
Nickel	6010	10	5.9	7.2	2,000	20
Selenium	6010	<1.0	<1.0	<1.0	100	1
Silver	6010	<0.1	<0.1	<0.1	500	5
Thallium	6010	<5.0	<5.0	<5.0	700	7
Vanadium	6010	24	17	20	2,400	24
Zinc	6010	60	27	33	5,000	250
VOCs (l) (mg/kg)						
Trichloroethene	8260	<0.100	0.026	0.059		
1,3,5-Trimethylbenzene	8260	0.240	<0.0025	<0.0025		
1,2,4-Trimethylbenzene	8260	0.640	<0.0025	<0.0025		
sec-Butylbenzene	8260	0.200	<0.0025	<0.0025		
p-Isopropyltoluene	8260	0.190	<0.0025	<0.0025		
Naphthalene	8260	3.800	<0.0025	<0.0025		
SVOCs (l) (mg/kg)						
Benzo (a) Anthracene	8270	1.600	<0.100	<0.100		
Chrysene	8270	2.600	<0.100	<0.100		
Fluorene	8270	3.700	<0.100	<0.100		
2-Methylnaphthalene	8270	8.900	<0.100	<0.100		
Naphthalene	8270	1.000	<0.100	<0.100		
Phenanthrene	8270	11.000	<0.100	<0.100		
Pyrene	8270	5.600	<0.100	<0.100		
Carbon Chain Range (mg/kg)						
Up to and including C12	8015m	2,000 #	<8.0	<8.0		
C13-C22	8015m	23,000 #	<8.0	<8.0		
C23 and higher	8015m	3,100	<8.0	<8.0		
PCBs (mg/kg)	8080	ND	ND	ND		

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

-- = not analyzed

ND = not detected

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

bgs = below ground surface

TRPH = Total Recoverable Petroleum Hydrocarbons

TPHd = Total Petroleum Hydrocarbons as diesel

TPHg = Total Petroleum Hydrocarbons as gasoline

TTLc = California Total Threshold Limit Concentration

STLC = California Soluble Threshold Limit Concentration

(1) VOCs and SVOCs not listed were not detected

(2) Waste Extraction Test performed on this sample. Result was 2.8 mg/L.

= Exceeds Screening Level

* Refer to Figure 8 for sample location

TABLE 3
Analytical Data Summary
Remedial Excavation OA1-RE-4 Stockpile Samples*

Analyte	EPA Method	Sample Number and Collection Date			Regulatory Levels	
		OA1-RE4-SP1 7/22/97	OA1-RE4-SP2 7/22/97	OA1-RE4-SP3 7/23/97		
TRPH (mg/kg)	418.1	1,300	76	63		
Title 22 Metals (mg/kg)					TTL	STL
					(mg/kg)	(mg/L)
Antimony	6010	<5.0	<5.0	<5.0	500	15
Arsenic	6010	<1.0	<1.0	<1.0	500	5
Barium	6010	110	100	97	10,000	100
Beryllium	6010	<0.1	<0.1	<0.1	75	0.75
Cadmium	6010	<0.1	<0.1	<0.1	100	1
Chromium (VI)	7196	<0.5	<0.5	<0.5	500	5
Chromium (total)	6010	160 (2)(3)	29	29	2,500	5
Cobalt	6010	7.1	6.6	6.2	8,000	80
Copper	6010	36	22	13	2,500	25
Lead (total)	6010	41	<1.0	<1.0	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.5	<0.5	<0.5	3,500	350
Nickel	6010	15	10	11	2,000	20
Selenium	6010	<1.0	<1.0	<1.0	100	1
Silver	6010	<0.1	<0.1	<0.1	500	5
Thallium	6010	<5.0	<5.0	<5.0	700	7
Vanadium	6010	33	29	26	2,400	24
Zinc	6010	280	56	63	5,000	250
VOCs (1) (mg/kg)						
Ethylbenzene	8260	<0.0025	<0.0025	<0.0025		
Tetrachloroethene	8260	<0.0025	<0.0025	<0.0025		
Trichloroethene	8260	<0.0025	0.0074	<0.0025		
Total Xylenes	8260	0.054	<0.0025	<0.0025		
n-Propylbenzene	8260	<0.0025	<0.0025	<0.0025		
1,3,5-Trimethylbenzene	8260	0.053	<0.0025	<0.0025		
1,2,4-Trimethylbenzene	8260	0.170	<0.0025	<0.0025		
sec-Butylbenzene	8260	0.028	<0.0025	<0.0025		
p-Isopropyltoluene	8260	0.033	<0.0025	<0.0025		
n-Butylbenzene	8260	0.039	<0.0025	<0.0025		
Naphthalene	8260	0.430	0.017	<0.0025		
SVOCs (1) (mg/kg)						
Benzo (a) Anthracene	8270	0.130	0.210	0.140		
Chrysene	8270	0.200	0.240	0.300		
bis (2-Ethylhexyl)Phthalate	8270	1.400	<0.100	<0.100		
Butylbenzylphthalate	8270	0.190	<0.100	<0.100		
Fluoranthene	8270	0.190	0.420	0.450		
Fluorene	8270	0.280	<0.100	<0.100		
2-Methylnaphthalene	8270	1.900	<0.100	<0.100		
Naphthalene	8270	0.390	<0.100	<0.100		
Phenanthrene	8270	0.990	0.230	0.210		
Pyrene	8270	0.400	0.390	0.390		
Carbon Chain Range (mg/kg)						
	8015m	--	--	--		
PCBs (1) (mg/kg)						
PCB-1260	8080	0.035	--	--		

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

-- = not analyzed

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

TRPH = Total Recoverable Petroleum Hydrocarbons

PCBs = Polychlorinated biphenyls

ND = not detected

TTL = California Total Threshold Limit Concentration

STL = California Soluble Threshold Limit Concentration

(1) VOCs, SVOCs, and PCBs not listed were not detected

(2) Waste Extraction Test performed on this sample. Result was 2.2 mg/L.

(3) TCLP analysis performed on this sample. Result was <0.1 mg/L.

* Refer to Figures 4 and 5 for sample locations

TABLE 4
Analytical Data Summary
Remedial Excavation OA1-RE-4 Confirmation Sample

		Sample Number, Collection Date, Grid Location and Depth		
		RR-GS-23-4'		
		6/4/97		
		A.6-34 @ 4' bgs*		
Analyte	EPA Method			
TRPH (mg/kg)	418.1	110		Regulatory Levels
				TtLC
				STLC
Title 22 Metals (mg/kg)				(mg/kg)
Antimony	6010	<5.0		500
Arsenic	6010	<1.0		5
Barium	6010	140		10,000
Beryllium	6010	<0.1		75
Cadmium	6010	<0.1		100
Chromium (VI)	7196	<0.5		500
Chromium (total)	6010	30		5
Cobalt	6010	8.8		8,000
Copper	6010	14		2,500
Lead (total)	6010	<1.0		1,000
Mercury	7471	<0.01		20
Molybdenum	6010	<0.5		3,500
Nickel	6010	12		2,000
Selenium	6010	<1.0		100
Silver	6010	<0.1		500
Thallium	6010	<5.0		700
Vanadium	6010	35		2,400
Zinc	6010	41		5,000
				250
VOCs (mg/kg)	8260	--		
SVOCS (mg/kg)	8270	--		
Carbon Chain Range (mg/kg)	8015m	--		
PCBs (mg/kg)	8080	ND		

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

-- = not analyzed

ND = not detected

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

TRPH = Total Recoverable Petroleum Hydrocarbons

TTL = California Total Threshold Limit Concentration

STLC = California Soluble Threshold Limit Concentration

bgs = below ground surface

PCBs = Polychlorinated Biphenyls

* Refer to Figure 8 for sample location

TABLE 5
Analytical Data Summary
Remedial Excavation OA1-RE-5 Hot Spot Sample

		Sample Number, Collection Date, Grid Location and Depth		
		PL-GS-6-2.5'		
		6/9/97		
		A.8-27 @ 2.5' bgs*		
Analyte	EPA Method			
TRPH (mg/kg)	418.1	<8.0		
TPHd (mg/kg)	8015M	<8.0		
TPHg (mg/kg)	8015M	<5.0		
Title 22 Metals (mg/kg)				
Antimony	6010	<5.0	TTL (mg/kg)	STL (mg/L)
Arsenic	6010	<1.0	500	15
Barium	6010	100	500	5
Beryllium	6010	<0.1	10,000	100
Cadmium	6010	<0.1	75	0.75
Chromium (VI)	6010	<0.1	100	1
Chromium (total)	7196	<0.5	500	5
Cobalt	6010	29	2,500	5
Copper	6010	6.9	8,000	80
Lead (total)	6010	<0.1	2,500	25
Mercury	6010	<1.0	1,000	5
Molybdenum	7471	<0.01	20	0.2
Nickel	6010	<0.5	3,500	350
Selenium	6010	15	2,000	20
Silver	6010	<1.0	100	1
Thallium	6010	<0.1	500	5
Vanadium	6010	<5.0	700	7
Zinc	6010	31	2,400	24
	6010	52	5,000	250
VOCs (1) (mg/kg)				
1,1-Dichloroethane	8260	0.0075		
Trichloroethene	8260	0.074		
cis-1,2-Dichloroethene	8260	0.0061		
1,1,2-Trichloroethane	8260	0.0025		
SVOCs (mg/kg)	8270	ND		
Carbon Chain Range (mg/kg)	8015m	ND		
PCBs (ma/ka)	8080	ND		

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

-- = not analyzed

ND = not detected

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

TRPH = Total Recoverable Petroleum Hydrocarbons

TPHd = Total Petroleum Hydrocarbons as diesel

TPHg = Total Petroleum Hydrocarbons as gasoline

TTL = California Total Threshold Limit Concentration

STL = California Soluble Threshold Limit Concentration

(1) VOCs not listed were not detected

bgs = below ground surface

* Refer to Figure 8 for sample location

TABLE 6
Analytical Data Summary
Remedial Excavation OA1-RE-5 Stockpile Samples*

Analyte	EPA Method	Sample Number and Collection Date			Regulatory Levels	
		OA1-RE5-SP1 7/24/97	OA1-RE5-SP2 7/24/97	OA1-RE5-SP3 7/25/97		
TRPH (mg/kg)	418.1	300	210	260		
Title 22 Metals (mg/kg)					TTLC (mg/kg)	STLC (mg/L)
Antimony	6010	<5.0	<5.0	<5.0	500	15
Arsenic	6010	<1.0	<1.0	<1.0	500	5
Barium	6010	83	76	120	10,000	100
Beryllium	6010	<0.1	<0.1	<0.1	75	0.75
Cadmium	6010	<0.1	<0.1	<0.1	100	1
Chromium (VI)	7196	<0.5	<0.5	<0.5	500	5
Chromium (total)	6010	26	28	62 (2)(3)	2,500	5
Cobalt	6010	6.0	6.8	8.4	8,000	80
Copper	6010	32	26	65	2,500	25
Lead (total)	6010	5.3	<1.0	13	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.5	<0.5	<0.5	3,500	350
Nickel	6010	10	11	16	2,000	20
Selenium	6010	<1.0	<1.0	<1.0	100	1
Silver	6010	<0.1	<0.1	<0.1	500	5
Thallium	6010	<5.0	<5.0	<5.0	700	7
Vanadium	6010	24	26	32	2,400	24
Zinc	6010	82	110	180	5,000	250
VOCs (1) (mg/kg)						
Ethylbenzene	8260	0.0083	<0.0025	<0.0025		
1,1,2-Trichloroethane	8260	0.0037	<0.0025	<0.0025		
Trichloroethene	8260	0.063	<0.0025	0.0049		
Total Xylenes	8260	0.013	0.0091	<0.0025		
Isopropylbenzene	8260	0.0065	<0.0025	<0.0025		
n-Propylbenzene	8260	0.015	0.0028	<0.0025		
1,3,5-Trimethylbenzene	8260	0.0056	0.0060	<0.0025		
1,2,4-Trimethylbenzene	8260	0.012	0.016	0.0052		
sec-Butylbenzene	8260	0.0071	0.0031	<0.0025		
p-Isopropyltoluene	8260	0.0029	0.0031	<0.0025		
n-Butylbenzene	8260	0.014	0.0030	<0.0025		
Naphthalene	8260	0.110	0.018	<0.0025		
SVOCs (1) (mg/kg)						
Benzo (a) Anthracene	8270	<0.100	0.270	<0.100		
Benzo (b) Fluoranthene	8270	<0.250	0.420	<0.250		
Benzo(a)Pyrene	8270	<0.250	0.220	<0.250		
bis (2-Ethylhexyl)Phthalate	8270	0.130	0.110	<0.100		
Chrysene	8270	0.100	0.840	0.110		
Fluoranthene	8270	<0.100	1.200	0.130		
2-Methylnaphthalene	8270	0.340	0.120	<0.100		
Naphthalene	8270	0.130	<0.100	<0.100		
Phenanthrene	8270	0.110	0.680	<0.100		
Pyrene	8270	0.150	1.500	0.130		
Carbon Chain Range (mg/kg)						
	8015m	--	--	--		
PCBs (1) (mg/kg)						
PCB-1260	8080	0.038	--	--		

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

-- = not analyzed

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

TRPH = Total Recoverable Petroleum Hydrocarbons

PCBs = Polychlorinated biphenyls

TTLC = California Total Threshold Limit Concentration

STLC = California Soluble Threshold Limit Concentration

(1) VOCs, SVOCs, and PCBs not listed were not detected

(2) Waste Extraction Test performed on this sample. Result was 0.59 mg/L

(3) TCLP analysis performed on this sample. Result was <0.1 mg/L.

* Refer to Figure 6 for sample locations

TABLE 7
Analytical Data Summary
Remedial Excavation OA1-RE-6 Hot Spot Samples

Analyte	EPA Method	Sample Number, Collection Date, Grid Location and Depth			Regulatory Levels	
		PL-GS-7-2.5' 6/9/97	PL-GS-8-3.5' 7/2/97	PL-GS-9-3.5' 7/2/97		
		A.7/A.8-24 @ 2.5' bgs*	A.8-20 @ 3.5' bgs*	A.7/A.8-18 @ 3.5' bgs*	TTLC (mg/kg)	STLC (mg/L)
TRPH (mg/kg)	418.1	<8.0	20,000	16,000		
TPHd (mg/kg)	8015M	<8.0	9,900	15,000		
TPHg (mg/kg)	8015M	<5.0	180	250		
Title 22 Metals (mg/kg)						
Antimony	6010	<5.0	<5.0	<5.0	500	15
Arsenic	6010	<1.0	<1.0	<1.0	500	5
Barium	6010	95	93	110	10,000	100
Beryllium	6010	<0.1	<0.1	<0.1	75	0.75
Cadmium	6010	<0.1	<0.1	<0.1	100	1
Chromium (VI)	7196	<0.5	<0.5	<0.5	500	5
Chromium (total)	6010	29	26	32	2,500	5
Cobalt	6010	7.0	7.6	7.0	8,000	80
Copper	6010	1.1	1.1	20	2,500	25
Lead (total)	6010	<1.0	<1.0	<1.0	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.5	<0.5	<0.5	3,500	350
Nickel	6010	14	9.5	14	2,000	20
Selenium	6010	<1.0	<1.0	<1.0	100	1
Silver	6010	<0.1	<0.1	<0.1	500	5
Thallium	6010	<5.0	<5.0	<5.0	700	7
Vanadium	6010	30	30	37	2,400	24
Zinc	6010	120	81	81	5,000	250
VOCs (l) (mg/kg)						
1,1-Dichloroethene	8260	<0.0025	0.120	<0.100		
Ethylbenzene	8260	<0.0025	0.150	<0.100		
Trichloroethene	8260	<0.0025	0.750	<0.100		
Total Xylenes	8260	<0.0025	0.210	<0.100		
cis-1,2-Dichloroethene	8260	<0.0025	0.310	<0.100		
Isopropylbenzene	8260	<0.0025	0.130	0.100		
n-Propylbenzene	8260	<0.0025	0.230	<0.100		
1,3,5-Trimethylbenzene	8260	<0.0025	0.330	0.370		
1,2,4-Trimethylbenzene	8260	<0.0025	1.200	0.210		
sec-Butylbenzene	8260	<0.0025	0.210	0.410		
p-Isopropyltoluene	8260	<0.0025	0.270	0.570		
n-Butylbenzene	8260	<0.0025	0.260	0.280		
Naphthalene	8260	<0.0025	1.400	1.100		
SVOCs (l) (mg/kg)						
Acenaphthene	8270	<0.100	<0.400	1.000		
Anthracene	8270	<0.100	0.510	<0.800		
Benzo (a) Anthracene	8270	<0.100	0.440	1.000		
Chrysene	8270	<0.100	1.000	1.600		
Fluoranthene	8270	<0.100	0.500	1.300		
Fluorene	8270	<0.100	2.200	1.300		
2-Methylnaphthalene	8270	<0.100	8.100	7.200		
Naphthalene	8270	<0.100	2.200	1.500		
Phenanthrene	8270	<0.100	7.400	6.000		
Pyrene	8270	<0.100	0.640	1.900		
Carbon Chain Range (mg/kg)						
Up to and including C12	8015m	<8.0	710	1,200		
C13-C22	8015m	<8.0	8,000	12,000 #		
C23 and higher	8015m	<8.0	2,400	3,100		
PCBs (mg/kg)	8080	ND	ND	ND		

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

-- = not analyzed

ND = not detected

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

TRPH = Total Recoverable Petroleum Hydrocarbons

TPHd = Total Petroleum Hydrocarbons as diesel

TPHg = Total Petroleum Hydrocarbons as gasoline

TTLC = California Total Threshold Limit Concentration

STLC = California Soluble Threshold Limit Concentration

(1) VOCs and SVOCs not listed were not detected

bgs = below ground surface

= Exceeds Screening Level

* Refer to Figure 8 for sample location

TABLE 8
Analytical Data Summary
Remedial Excavation OA1-RE-6 Stockpile Samples*

Analyte	EPA Method	Sample Number and Collection Date			Regulatory Levels	
		OA1-RE6-SP1 7/28/97	OA1-RE6-SP2 7/29/97	OA1-RE6-SP3 7/29/97		
TRPH (mg/kg)	418.1	120	5,900	4,700		
Title 22 Metals (mg/kg)					TTL	STL
					(mg/kg)	(mg/L)
Antimony	6010	<5.0	<5.0	<5.0	500	15
Arsenic	6010	<1.0	<1.0	<1.0	500	5
Barium	6010	110	96	98	10,000	100
Beryllium	6010	<0.1	<0.1	<0.1	75	0.75
Cadmium	6010	<0.1	<0.1	<0.1	100	1
Chromium (VI)	7196	<0.5	<0.5	<0.5	500	5
Chromium (total)	6010	35	59 (2)(3)	38	2,500	5
Cobalt	6010	7.7	6.0	7.2	8,000	80
Copper	6010	30	48	24	2,500	25
Lead (total)	6010	<1.0	24	<1.0	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.5	<0.5	<0.5	3,500	350
Nickel	6010	9.5	14	12	2,000	20
Selenium	6010	<1.0	<1.0	<1.0	100	1
Silver	6010	<0.1	<0.1	<0.1	500	5
Thallium	6010	<5.0	<5.0	<5.0	700	7
Vanadium	6010	25	30	31	2,400	24
Zinc	6010	71	440	110	5,000	250
VOCs (1) (mg/kg)						
Ethylbenzene	8260	<0.0025	0.280	0.180		
Trichloroethene	8260	0.0052	0.110	0.085		
Total Xylenes	8260	<0.0025	0.550	0.420		
Isopropylbenzene	8260	<0.0025	0.210	0.230		
n-Propylbenzene	8260	<0.0025	0.380	0.370		
1,3,5-Trimethylbenzene	8260	<0.0025	0.580	0.470		
1,2,4-Trimethylbenzene	8260	<0.0025	2.000	2.500		
sec-Butylbenzene	8260	<0.0025	0.320	0.350		
p-Isopropyltoluene	8260	<0.0025	0.420	0.470		
n-Butylbenzene	8260	<0.0025	0.350	0.460		
Naphthalene	8260	<0.0025	1.800	2.600		
SVOCs (1) (mg/kg)						
Anthracene	8270	<0.100	1.000	0.800		
Benzo (a) Anthracene	8270	<0.100	0.560	<0.400		
bis (2-Ethylhexyl)Phthalate	8270	0.130	0.640	<0.400		
Chrysene	8270	<0.100	1.000	<0.400		
Fluoranthene	8270	<0.100	0.960	0.570		
Fluorene	8270	<0.100	2.000	2.100		
2-Methylnaphthalene	8270	<0.100	9.600	10.000		
Naphthalene	8270	<0.100	2.900	3.700		
Phenanthrene	8270	<0.100	5.300	5.300		
Pyrene	8270	0.110	1.500	0.620		
Carbon Chain Range (mg/kg)	8015m	--	--	--		
PCBs (1) (mg/kg)						
PCB-1260	8080	--	0.079	--		

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

-- = not analyzed

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

TRPH = Total Recoverable Petroleum Hydrocarbons

PCBs = Polychlorinated biphenyls

ND = not detected

TTL = California Total Threshold Limit Concentration

STL = California Soluble Threshold Limit Concentration

(1) VOCs, SVOCs, and PCBs not listed were not detected

(2) Waste Extraction Test performed on this sample. Result was 1.0 mg/L.

(3) TCLP analysis performed on this sample. Result was <0.1 mg/L.

* Refer to Figure 7 for sample locations

TABLE 9
Health-Based Remediation Goals (HBRGs) for
Organic Constituents Soil Exposure Pathways (mg/kg)
Page 1 of 5

Constituent	Construction Worker Initial HBRG	Commercial/ Industrial User Initial HBRG	Final HBRG
1-butanol	1.98E+04	3.46E+04	1.98E+04
1,1-dichloroethane	2.23E+03	1.10E+03	1.10E+03
1,1-dichloroethene	1.57E+01	4.21E+00	4.21E+00
1,1,1,2-tetrachloroethane	4.98E+02	1.44E+04	4.98E+02
1,1,2-trichloroethane	2.23E+02	1.26E+03	2.23E+02
1,1,2,2-tetrachloroethane	6.25E+01	1.50E+03	6.25E+01
1,2-dibromo-3-chloropropane	2.42E+00	7.47E+01	2.42E+00
1,2-dibromoethane	4.86E+00	1.84E+02	4.86E+00
1,2-dichlorobenzene	NA	2.64E+06	2.64E+06
1,2-dichloroethane	2.06E+02	2.66E+02	2.06E+02
1,2-dichloropropane	3.37E+01	7.25E+00	7.25E+00
1,2-diphenylhydrazine	2.03E+01	2.36E+08	2.03E+01
1,2,3-trichloropropane	2.39E+00	4.08E+01	2.39E+00
1,2,4-trichlorobenzene	1.74E+02	4.74E+07	1.74E+02
1,3-dichloropropene	4.83E+01	6.63E+02	4.83E+01
1,4-dichlorobenzene	4.32E+02	4.37E+04	4.32E+02
2-butanone	3.28E+04	2.35E+06	3.28E+04
2-chlorophenol	8.57E+02	1.17E+06	8.57E+02
2-methylphenol	8.66E+03	7.59E+07	8.66E+03
2-naphthylamine	9.81E+00	1.63E+06	9.81E+00
2,4-dichlorophenol	5.21E+01	2.22E+07	5.21E+01
2,4-dimethylphenol	3.48E+03	4.37E+08	3.48E+03
2,4-dinitrophenol	3.49E+01	7.14E+09	3.49E+01
2,4-dinitrotoluene	3.48E+01	7.62E+06	3.48E+01
2,4,5-trichlorophenol	1.73E+04	2.21E+08	1.73E+04
2,4,6-trichlorophenol	2.52E+02	1.10E+07	2.52E+02
2,6-dinitrotoluene	2.59E+01	4.51E+05	2.59E+01
3,3-dichlorobenzidine	1.47E+01	7.53E+08	1.47E+01
4-chloroaniline	6.93E+01	6.50E+06	6.93E+01
4-methyl-2-pentanone	1.20E+04	6.84E+05	1.20E+04
4-methylphenol	8.69E+01	4.01E+07	8.69E+01
4,4-ddd	1.03E+02	9.97E+08	1.03E+02
4,4-dde	7.28E+01	2.83E+06	7.28E+01
4,4-ddt	1.22E+01	2.26E+08	1.22E+01
acenaphthene	8.10E+03	1.62E+08	8.10E+03
acetone	1.55E+04	4.37E+05	1.55E+04
acrolein	NA	8.05E+01	8.05E+01
acrylonitrile	1.59E+01	7.65E+01	1.59E+01

TABLE 9
Health-Based Remediation Goals (HBRGs) for
Organic Constituents Soil Exposure Pathways (mg/kg)
Page 2 of 5

Constituent	Construction Worker Initial HBRG	Commercial/ Industrial User Initial HBRG	Final HBRG
aldrin	7.32E-01	2.82E+04	7.32E-01
alpha-bhc	3.93E+00	2.32E+05	3.93E+00
aniline	3.10E+03	1.02E+07	3.10E+03
anthracene	4.06E+03	1.37E+10	4.06E+03
aroclor 1016	NA	7.35E+05	7.35E+05
aroclor 1254	8.70E-01	5.69E+05	8.70E-01
benzene	1.43E+02	1.71E+02	1.43E+02
benzidine	3.52E-02	1.55E+02	3.52E-02
benzoic acid	6.96E+04	6.58E+10	6.96E+04
benzo(a)anthracene	1.14E+01	1.13E+09	1.14E+01
benzo(a)pyrene	1.14E+00	9.56E+07	1.14E+00
benzo(b)fluoranthene	1.14E+01	3.19E+08	1.14E+01
benzo(k)fluoranthene	1.14E+01	9.56E+07	1.14E+01
benzyl alcohol	1.73E+04	3.81E+08	1.73E+04
benzyl chloride	1.00E+02	4.03E+03	1.00E+02
beta-bhc	1.38E+01	9.94E+06	1.38E+01
beta-chloronaphthalene	NA	2.32E+07	2.32E+07
bis(2-chloro-1-methylethyl)ether	2.49E+02	2.93E+04	2.49E+02
bis(2-chloroethyl)ether	6.91E+00	6.91E+02	6.91E+00
bis(2-ethylhexyl)phthalate	2.10E+03	3.59E+09	2.10E+03
bromodichloromethane	1.30E+02	2.94E+03	1.30E+02
bromoform	3.34E+02	1.28E+05	3.34E+02
bromomethane	NA	1.15E+02	1.15E+02
carbazole	8.83E+02	6.66E+08	8.83E+02
carbon disulfide	1.43E+03	7.04E+04	1.43E+03
carbon tetrachloride	9.71E+01	1.35E+02	9.71E+01
chlordane	1.04E+00	1.55E+05	1.04E+00
chlorobenzene	NA	2.83E+04	2.83E+04
chloroform	1.49E+02	9.58E+02	1.49E+02
chloromethane	7.43E+02	7.40E+01	7.40E+01
chrysene	1.14E+02	5.06E+10	1.14E+02
cis-1,2-dichloroethene	1.34E+03	7.51E+03	1.34E+03
cumene	3.79E+03	5.73E+04	3.79E+03
dibenzo(a,h)anthracene	3.35E+00	6.34E+11	3.35E+00
dibromochloromethane	1.50E+02	1.54E+02	1.50E+02
dichlorodifluoromethane	2.14E+03	7.01E+02	7.01E+02
dieldrin	1.22E+00	2.33E+04	1.22E+00
diethyl phthalate	1.39E+05	6.03E+09	1.39E+05
di-n-butylphthalate	1.74E+04	4.19E+08	1.74E+04

TABLE 9
Health-Based Remediation Goals (HBRGs) for
Organic Constituents Soil Exposure Pathways (mg/kg)
Page 3 of 5

Constituent	Construction Worker Initial HBRG	Commercial/ Industrial User Initial HBRG	Final HBRG
di-n-octylphthalate	3.49E+02	1.80E+10	3.49E+02
endosulfan	1.46E+02	2.14E+08	1.46E+02
endrin	7.33E+00	1.37E+08	7.33E+00
ethyl chloride	1.42E+05	1.57E+06	1.42E+05
ethylbenzene	NA	7.33E+05	7.33E+05
fluoranthene	6.97E+03	3.03E+10	6.97E+03
fluorene	6.94E+03	1.40E+08	6.94E+03
gamma-bhc	2.32E+01	2.63E+05	2.32E+01
heptachlor	2.87E+00	1.78E+03	2.87E+00
heptachlor epoxide	3.14E-01	1.35E+03	3.14E-01
hexachlorobenzene	9.69E+00	2.80E+03	9.69E+00
hexachlorobutadiene	2.24E+02	7.13E+04	2.24E+02
hexachlorocyclopentadiene	8.87E+01	9.79E+02	8.87E+01
hexachloroethane	1.73E+02	2.39E+05	1.73E+02
indeno(1,2,3-cd)pyrene	1.47E+01	1.23E+11	1.47E+01
isobutyl alcohol	4.81E+04	2.55E+06	4.81E+04
isophorone	1.85E+04	2.92E+07	1.85E+04
methoxychlor	8.71E+01	1.48E+09	8.71E+01
methyl methacrylate	1.06E+03	5.56E+04	1.06E+03
methylene bromide	1.51E+03	2.75E+04	1.51E+03
methylene chloride	1.07E+03	1.26E+03	1.07E+03
methyl-tert-butyl ether	NA	1.39E+06	1.39E+06
n-butylbenzyl phthalate	3.48E+03	6.52E+09	3.48E+03
nitroaniline, o-	8.07E+03	2.45E+06	8.07E+03
nitrobenzene	8.61E+01	1.78E+05	8.61E+01
nitrosodiphenylamine, p-	8.02E+02	1.03E+07	8.02E+02
n-nitrosodimethylamine	2.60E-01	1.38E-02	1.38E-02
n-nitroso-di-n-propylamine	2.48E+00	4.46E+02	2.48E+00
n-nitrosodiphenylamine	1.96E+03	4.80E+09	1.96E+03
o-chlorotoluene	3.14E+03	1.05E+05	3.14E+03
p-chloro-m-cresol	3.48E+04	NA	3.48E+04
pentachlorophenol	3.04E+02	3.09E+07	3.04E+02
phenol	1.04E+04	3.14E+09	1.04E+04
pyrene	2.35E+03	4.11E+10	2.35E+03
styrene	3.02E+05	7.58E+06	3.02E+05
tetrachloroethene	3.36E+02	7.52E+03	3.36E+02
toluene	3.12E+04	2.41E+05	3.12E+04
toxaphene	1.47E+01	9.16E+04	1.47E+01
trans-1,2-dichloroethene	2.68E+03	1.47E+04	2.68E+03

TABLE 9
Health-Based Remediation Goals (HBRGs) for
Organic Constituents Soil Exposure Pathways (mg/kg)
Page 4 of 5

Constituent	Construction Worker Initial HBRG	Commercial/ Industrial User Initial HBRG	Final HBRG
trichloroethene	1.05E+03	1.39E+03	1.05E+03
trichlorofluoromethane	1.03E+04	4.89E+04	1.03E+04
vinyl acetate	5.41E+03	2.31E+05	5.41E+03
vinyl chloride	5.16E+00	1.81E-01	1.81E-01
xylenes	3.26E+04	2.61E+07	3.26E+04

TABLE 9
Health-Based Remediation Goals (HBRGs) for
Inorganic Constituents Soil Exposure Pathways (mg/kg)
Page 5 of 5

Compound	Initial HBRG	ILM Background*	Final HBRG
aluminum	NT	3.63E+04	3.63E+04
antimony	9.05E+00	5.00E+00	9.05E+00
arsenic	8.87E+00	1.40E+01	1.40E+01
barium	2.52E+03	2.81E+02	2.52E+03
beryllium	1.56E+01	7.40E-01	1.56E+01
cadmium	1.64E+01	8.80E-01	1.64E+01
calcium	NT	3.80E+04	3.80E+04
chromium iii	3.22E+04	4.10E+01	3.22E+04
chromium vi	9.73E+01	NA	9.73E+01
cobalt	NT	2.00E+01	2.00E+01
copper	1.26E+03	5.30E+01	1.26E+03
cyanide	6.99E+02	NA	6.99E+02
iron	NT	6.05E+04	6.05E+04
lead	NT	1.11E+02	1.11E+02
mercury	6.78E+00	2.80E-01	6.78E+00
molybdenum	1.24E+03	2.30E+01	1.24E+03
nickel	2.39E+02	2.90E+01	2.39E+02
potassium	NT	8.26E+03	8.26E+03
selenium	1.82E+02	1.24E+03	1.24E+03
silver	1.30E+02	2.39E+02	2.39E+02
sodium	NT	1.96E+03	1.96E+03
thallium	NT	1.10E+01	1.10E+01
titanium	NT	1.95E+03	1.95E+03
vanadium	8.37E+01	8.20E+01	8.37E+01
zinc	8.73E+03	1.98E+02	8.73E+03

NOTES:

*ILM background values provided in Baseline Risk Assessment (G&M 1996).

NT = No Toxicity values available for calculation of HBRG

NA = Not Available.

TABLE 10
Open Area No. 1 Remedial Excavations OA1-RE-4 through OA1-RE-6
Stockpile Sample Reference

Stockpile	Sample ID	Treatment or Off-Site Disposal	Non-RCRA Haz Waste
OA1-RE4-A	OA1-RE4-SP1		
	PL-GS-3-3'	X	
OA1-RE4-B	OA1-RE4-SP2		
OA1-RE4-C	not sampled		
OA1-RE4-D	PL-GS-4-2'		
OA1-RE4-E	not sampled		
OA1-RE4-F	not sampled		
OA1-RE4-G	OA1-RE4-SP3		
	RR-GS-23-4'		
OA1-RE4-H	PL-GS-5-3.5'		
OA1-RE4-I	not sampled		
OA1-RE4-J	not sampled		
OA1-RE5-A	not sampled		
OA1-RE5-B	not sampled		
OA1-RE5-C	OA1-RE5-SP1		
	PL-GS-6-2.5'		
OA1-RE5-D	not sampled		
OA1-RE5-E	not sampled		
OA1-RE5-F	not sampled		
OA1-RE5-G	OA1-RE5-SP2		
OA1-RE5-H	not sampled		
OA1-RE5-I	not sampled		
OA1-RE5-J	OA1-RE5-SP3		
OA1-RE6-A	not sampled		
OA1-RE6-B	PL-GS-7-2.5'		
OA1-RE6-C	not sampled		
OA1-RE6-D	OA1-RE6-SP1		
OA1-RE6-E	not sampled		
OA1-RE6-F	not sampled		
OA1-RE6-G	not sampled		
OA1-RE6-H	OA1-RE6-SP2		
	PL-GS-8-3.5'		
OA1-RE6-I	not sampled		
OA1-RE6-J	OA1-RE6-SP3		
	PL-GS-9-3.5'	X	

X Denotes stockpile disposition based on soil sample failing a screening criterion.

Blank space denotes soil samples which pass all screening criteria.